



CONCAST PRECAST GROUP
CIVIL ENGINEERING SOLUTIONS



The Concast Precast Group is a major provider of precast concrete solutions servicing the Irish and UK markets. Founded in 1975, Concast's business has grown through our reputation for delivering quality projects, on time and within budget.

Concast has a professional cross functional team with the expertise and state of the art facilities to deliver an extensive range of precast solutions.

Concast offers both public and private sector clients a comprehensive service including design, production, transportation and installation on site. Concast provides precast solutions to a wide range of developments including road and rail projects, multi-storey car parks, office blocks, residential schemes, industrial schemes, sports stadia and power plants.

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1. Docklands Residential Scheme

Concast provides multi-storey structural precast concrete solutions for major residential schemes, including luxury apartments, duplexes and townhouses, social-affordable schemes and student accommodation. Concast's design team provides flexible solutions, to suit modern designs. In addition to the structural frame, Concast can provide additional products such as precast balconies, cladding panels, lift-core pods.

2. Sports and Leisure Stadia

Concast are a leading manufacturer of sports and leisure facilities including spectator stands which generally incorporate auxiliary facilities such as changing rooms, meeting rooms, conference and exhibition space.

3. Multi-storey Car Parks

Precast provides flexible and competitive solutions for all types of multi-storey car parks, from stand-alone car parks, to underground or basement car parks on multi-storey commercial, industrial and residential schemes.

Design & Planning

Concast's in-house designers, work closely with our clients design team to deliver a flexible and innovative solution for every project undertaken.

It is essential to identify the most efficient sizes and shapes for components, at an early stage. This ensures structural efficiency and minimises cost.



Transport & Installation

Concast has a fleet of specialist equipment, to facilitate the transportation and installation of our precast concrete products. Professional crews, complete the installation process on site.

Concast is committed to delivering projects on programme and within budget in a safe and efficient manner.



Production & ISO Quality Controls

Concast has invested heavily in plant and equipment; our modern moulding systems produce a consistently high quality product.

Concast has been awarded ISO 9001 Quality Certification, which is independently monitored.



Health & Safety

Safe working procedures are implemented at all stages of the process from the initial design risk assessment right through to the completion of the safety file.

Precast construction keeps the site, cleaner and improves logistics on site.

Concast Provide a **Quality Service**



Bridge Beams

Prestressed concrete bridge beams provide a durable, high quality solution for modern road structures. Concast has a dedicated production facility, which manufactures to precise tolerances in compliance with ISO 9001 quality procedures. The high quality steel moulds produce units with an impressive finish, available in a wide range of bridge profiles, which span up to 45m depending on conditions.








Prestressed technology typically provides slimmer, stronger, lighter, beams and also lowers the cost versus traditional building methods. The speed of installation of precast bridge beams is a key benefit when contractors are planning major road developments. The prestressed beams manufactured in the facility can also be used in the construction of multi-storey car parks, commercial developments, jetties and marine decks etc.

Introducing the Concast Super U (CSU) Beam

Concast manufactures a wide range of bridge profiles such as the familiar TY, Y, M and U formats etc. U beams are the most widely used beam due to their attractive profile. Concast has also introduced the Concast Super U beam (CSU) with larger spans.

The Concast team has designed and developed the Concast Super U beam (CSU) in consultation with engineering firm Mott MacDonald. Subsequent to rigorous third party testing and approval, the CSU has been successfully erected on numerous National Roads Authority (NRA) bridge schemes.

For larger spans the CSU has significant economic advantages when compared to the standard U-beam, providing a lower cost solution, with faster erection times and greater spans of up to 45m. The familiar and attractive U profile is maintained on the underside of the finished bridge ensuring that the CSU will stand the test of time both from a durability and aesthetic perspective.

Beam Type	Shape	Spans	Applications
TY		5-18m	Medium span bridges, car parks, jetties and marine decks.
TYE		5-18m	Generally used as edge beams to the TY Beam.
M		16-29m	Provides voided bridge deck for medium and long span road bridge construction.
Y		14-31m	Medium and long span bridge beams.
YE		14-31m	Medium and long span bridge beams. YE is generally used as edge beams to the Y Beam.
U		14-34m	Excellent for skewed structures, good with torsion. U beams are popular due to their attractive edge profile.
CSU		13-45m	Similar in design and profile to the standard U beam, but with greater spanning capabilities.

Note: The above table provides a guide only, the Concast design office should be consulted in relation to specific technical requirements for individual contracts.

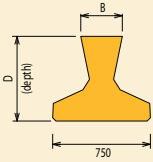
Parapets

Precast concrete parapets can be supplied by Concast and fixed on site. Precast concrete removes the necessity for complicated formwork, steel-fixing and pouring which is required for traditional insitu parapets. The required fixings or sockets for projecting bars may be provided as part of the bridge beam and cast in during the production stage.

Bridge Beams

TY Beam

Short and medium span bridges and commercial developments.
Span: 5-18m



PROFILE

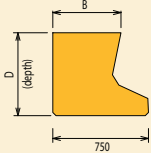
SECTION PROPERTIES

Design self weight per unit has been taken as 24kN/m³

Section No	Span (m)	Depth (mm)	B (mm)	Area (mm ²)	Height centroid above soffit Yb (mm)	Section modulus		Second moment of area (mm ⁴ x 10 ⁹)	Approximate self weight (kN/m)
						Zt (top) (mm ³ x 10 ⁶)	Zb (bottom) (mm ³ x 10 ⁶)		
TY1	4.5 - 8.5	400	218	188663	145.5	7.69	13.46	1.9581	4.53
TY2	7.5 - 9.5	450	238	200046	161.4	9.71	17.35	2.8011	4.80
TY3	8.5 - 10.5	500	258	212444	179.7	12.35	22.00	3.9538	5.10
TY4	9.5 - 11.5	550	279	225858	200.2	15.62	27.28	5.4630	5.43
TY5	10.5 - 12.5	600	299	240288	222.7	19.54	33.10	7.3730	5.77
TY6	11.5 - 13.5	650	319	255733	247.0	24.14	39.38	9.7266	6.14
TY7	12.5 - 14.5	700	339	272194	272.9	29.42	46.04	12.565	6.54
TY8	13.5 - 15.5	750	360	289671	300.2	35.41	53.06	15.926	6.96
TY9	14.5 - 16.5	800	380	308163	328.6	42.11	60.40	19.851	7.40
TY10	15.5 - 17.5	850	400	327671	358.2	49.56	68.05	24.375	7.87
TY11	16 - 18	900	421	348244	388.6	57.76	76.01	29.539	8.36

TYE Beam

Edge beam for short and medium span bridges and commercial developments.
Span: 5-18m



PROFILE

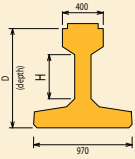
SECTION PROPERTIES

Design self weight per unit has been taken as 24kN/m³

Section No.	Span (m)	Depth (mm)	B (mm)	Area (mm ²)	Height centroid above soffit Yb (mm)	Dist. centroid to vertical face Xb (mm)	Section modulus		Second moment of area (mm ⁴ x 10 ⁹)	Approximate self weight (kN/m)
							Zt (top) (mm ³ x 10 ⁶)	Zb (bottom) (mm ³ x 10 ⁶)		
TYE1	4.5 - 8.5	400	484	244080	179.2	317.3	14.23	17.54	3.1420	5.86
TYE2	7.5 - 9.5	450	494	268520	201.6	310.6	18.07	22.28	4.4905	6.45
TYE3	8.5 - 10.5	500	504	293470	224.8	305.4	22.54	27.60	6.2035	7.05
TYE4	9.5 - 11.5	550	514	318920	248.8	301.4	27.62	33.45	8.3207	7.65
TYE5	10.5 - 12.5	600	525	344880	273.3	298.2	33.31	39.81	10.8820	8.28
TYE6	11.5 - 13.5	650	535	371350	298.4	295.8	39.62	46.68	13.929	8.92
TYE7	12.5 - 14.5	700	545	398330	323.9	294.1	46.54	54.04	17.503	9.56
TYE8	13.5 - 15.5	750	555	425810	349.8	292.8	54.09	61.88	21.646	10.22
TYE9	14.5 - 16.5	800	565	453800	376.0	292.0	62.27	70.21	26.401	10.89
TYE10	15.5 - 17.5	850	575	482290	402.6	291.6	71.10	79.03	31.814	11.58
TYE11	16 - 18	900	585	511300	429.4	291.5	80.59	88.33	37.928	12.27

M Beam

Provides voided bridge deck for medium and long span road bridge construction.
Span: 16-29m



PROFILE

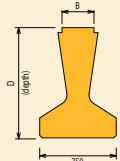
SECTION PROPERTIES

Design self weight per unit has been taken as 24kN/m³

Section No.	Span	Depth (mm)	Web Height H (mm)	Area (mm ²)	Height centroid above soffit Yb (mm)	Section modulus		Second moment of area (mm ⁴ x 10 ⁹)	Approximate self weight (kN/m)
						Zt (top) (mm ³ x 10 ⁶)	Zb (bottom) (mm ³ x 10 ⁶)		
M2	16 - 18	720	200	316650	265.4	35.64	61.04	16.202	7.60
M3	17.5 - 19.5	800	200	348650	309.8	46.96	74.32	23.020	8.37
M4	19 - 21	880	200	380650	353.4	58.76	87.56	30.944	9.14
M5	20.5 - 22.5	960	440	355050	357.0	59.39	100.33	35.813	8.52
M6	22 - 24	1040	440	387050	409.2	75.39	116.23	47.559	9.29
M7	23.5 - 26	1120	440	419050	459.6	91.52	131.53	60.446	10.06
M8	25 - 27	1200	680	393450	454.1	87.39	143.57	65.187	9.44
M9	26.5 - 28.5	1280	680	425450	512.3	108.09	161.96	82.977	10.21
M10	27 - 29	1360	680	457450	568.0	128.65	179.36	101.880	10.98

Y Beam

Ideal for medium and long span bridges and commercial developments.
Span 14-31m



PROFILE

SECTION PROPERTIES

Design self weight per unit has been taken as 24kN/m³

Section No	Span (m) - Beams @ 1000 c/c	Depth (mm)	B (mm)	Area (mm ²)	Height centroid above soffit Yb (mm)	Section modulus		Second moment of area (mm ⁴ x 10 ⁹)	Approximate self weight (kN/m)
						Zt (top) (mm ³ x 10 ⁶)	Zb (bottom) (mm ³ x 10 ⁶)		
Y1	14 - 16.5	700	198.1	310140	255.0	24.88	43.42	11.073	7.44
Y2	15.5 - 19	800	227.0	340830	298.4	35.07	58.96	17.593	8.18
Y3	18 - 21.5	900	255.8	374420	346.8	47.95	76.51	26.530	8.99
Y4	20.5 - 24	1000	284.7	410880	399.3	63.63	95.72	38.220	9.86
Y5	23 - 26	1100	313.5	450230	455.2	82.19	116.40	52.990	10.81
Y6	25 - 28.5	1200	342.3	492460	514.0	103.73	138.45	71.160	11.82
Y7	27.5 - 31	1300	371.2	537580	575.0	128.35	161.83	93.052	12.90
Y8	28 - 31	1400	400.0	585580	637.8	156.12	186.56	118.990	14.05





YE Beam

Edge beam for medium and long span bridges and commercial developments.
Span: 14-31m



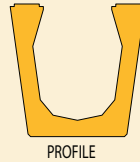
SECTION PROPERTIES

Design self weight per unit has been taken as 24kN/m³

Section No	Span (m) - Beams @ 1000 c/c	Depth (mm)	B (mm)	Area (mm ²)	Height centroid above soffit Yb (mm)	Dist. centroid to vertical face Xb (mm)	Section modulus		Second moment of area (mm ⁴ x 10 ⁹)	Approximate self weight (kN/m)
							Zt (top) (mm ³ x 10 ⁶)	Zb (bottom) (mm ³ x 10 ⁶)		
YE1	14 - 16.5	700	474.1	417260	315.0	309.5	44.43	54.31	17.106	10.01
YE2	15.5 - 19	800	488.5	470100	363.4	304.4	59.28	71.21	25.879	11.28
YE3	18 - 21.5	900	502.9	524400	413.4	300.9	76.61	90.18	37.278	12.59
YE4	20.5 - 24	1000	517.3	580130	464.6	298.7	96.45	111.15	51.641	13.92
YE5	23 - 26	1100	531.8	637300	516.8	297.5	118.85	134.13	69.316	15.30
YE6	25 - 28.5	1200	546.2	695920	569.8	297.1	143.86	159.10	90.659	16.70
YE7	27.5 - 31	1300	560.6	755980	623.6	297.3	171.55	186.08	116.040	18.14
YE8	28 - 31	1400	575.0	817480	678.0	298.0	201.98	215.10	145.830	19.62

U Beam

Ideal for medium and long span bridges.
Span: 14-34m



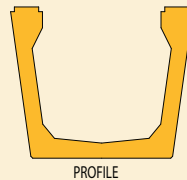
SECTION PROPERTIES

Design self weight per unit has been taken as 24kN/m³

Section No	Span (m)	Depth (mm)	Area (mm ²)	Height centroid above soffit Yb (mm)	Section modulus		Second moment of area (mm ⁴ x 10 ⁹)	Approximate self weight (kN/m)
					Zt (top) (mm ³ x 10 ⁶)	Zb (bottom) (mm ³ x 10 ⁶)		
U3	14.5 - 20	900	510457	398.4	84.39	106.27	42.335	12.25
U5	16 - 22	1000	543837	444.8	102.49	127.91	56.898	13.05
U7	17.5 - 24.5	1100	577217	491.7	121.93	150.83	74.168	13.85
U8	19 - 26.5	1200	610597	539.0	142.68	174.99	94.315	14.65
U9	21 - 28.5	1300	643987	586.5	164.69	200.36	117.510	15.46
U10	22.5 - 30.5	1400	677357	634.3	187.93	226.90	143.910	16.26
U11	24 - 32	1500	710737	682.2	212.40	254.60	173.690	17.06
U12	25.5 - 34	1600	744117	730.4	238.07	283.45	207.030	17.86

CSU Beam

Ideal for long span bridges.
Span: 13-45m



SECTION PROPERTIES

Design self weight per unit has been taken as 24kN/m³

Section No	Span (m)	Depth (mm)	Area (mm ²)	Height centroid above soffit Yb (mm)	Section modulus		Second moment of area (mm ⁴ x 10 ⁹)	Approximate self weight (kN/m)
					Zt (top) (mm ³ x 10 ⁶)	Zb (bottom) (mm ³ x 10 ⁶)		
CSU1	13 - 18.5	800	572964	305.43	71.92	116.46	35.57	13.75
CSU3	14.5 - 20	900	607700	346.09	89.61	143.43	49.64	14.58
CSU5	16 - 22	1000	642435	387.76	108.86	171.89	66.65	15.41
CSU7	17.5 - 24.5	1100	693173	440.39	136.31	204.17	89.91	16.63
CSU8	19 - 26.5	1200	727908	484.40	159.60	235.78	114.21	17.46
CSU9	21 - 28.5	1300	762644	528.97	184.29	268.62	142.09	18.30
CSU10	22.5 - 30.5	1400	814082	585.39	219.68	305.69	178.95	19.53
CSU11	24 - 32	1500	848817	631.44	248.24	341.46	215.61	20.37
CSU12	25.5 - 34	1600	883553	677.81	278.12	378.40	256.48	21.20
CSU13	27.5 - 36	1700	935690	736.85	321.40	420.11	309.56	22.45
CSU14	29 - 37.5	1800	977621	790.77	362.97	463.24	366.32	23.46
CSU15	30.5 - 39	1900	1018768	844.45	406.12	507.64	428.68	24.44
CSU16	32 - 40.5	2000	1060951	898.81	451.64	553.33	497.34	25.46
CSU17	33.5 - 41	2100	1105933	954.72	500.41	600.29	573.11	26.54
CSU18	35 - 43.5	2200	1153716	1012.09	552.50	648.48	656.32	27.68
CSU19	36.5 - 45	2300	1204298	1070.80	607.95	697.88	747.29	28.90

Typical Specification: Concrete

Transfer cube strength = 35N/mm²; 28 day cube strength = 60N/mm²
(Higher strengths can be accommodated where necessary)

Note: Technical data is provided as an illustrative guideline only, variations will occur. Project specific parameters must be referred to the Concast design team for analysis.

Bridge Beams

Bridge Decks

Concast manufactures various forms of bridge deck including glass reinforced concrete (GRC) panels and omnia plates. These panels replace the need for temporary shuttering and hence increase the speed of construction. A thorough testing and transparent quality control procedure is in place, as the units must be sufficiently durable to last the lifespan of the bridge.

Glass Reinforced Concrete (GRC)

GRC slabs are glass fibre reinforced concrete panels, which are used to span the short distance between bridge beams on site. They can be provided in various profiles such as corrugated or flat to suit the supporting beam design. They are light, durable and relatively inexpensive. GRC decks are recognised as an industry standard which are widely used on bridge beam projects.



Omnia Slab

Omnia slabs are a thin layer of solid concrete slab with a projecting lattice exposed to bind with an insitu concrete layer, poured later on site. It is suitable to span the short distance between bridge beams.



Precast Ramps

Concast has provided ramp slabs on a number of major developments throughout the country. These are solid reinforced slabs used on pedestrian bridges or similar instances. Typical span up to 7 meters, depending on the depth of the required unit.

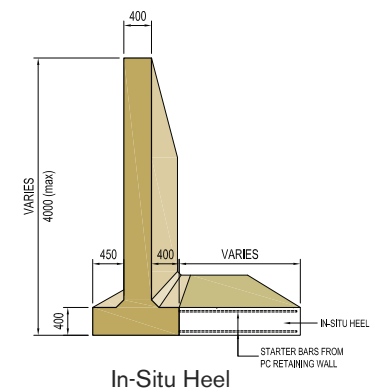
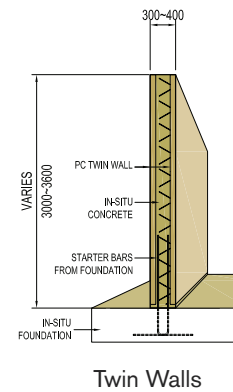
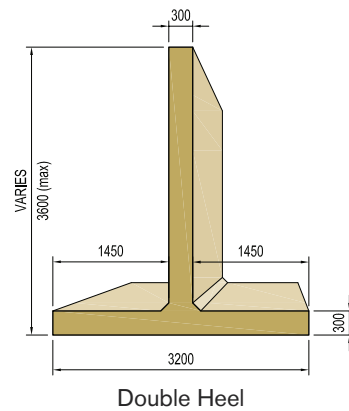
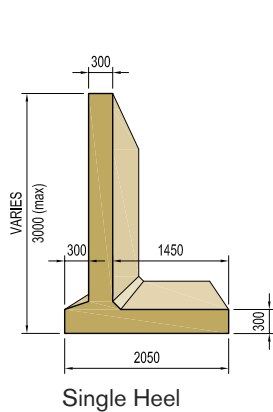
Bridge Decks

Retaining Wall Units

Concast's retaining wall units are an efficient means of bulk storage and the retention of materials. The precast concrete units are generally free-standing and can be dismantled or relocated if required.

Concast manufactures various types of retaining walls, including:

- Single or double heel wall units, of varying heights to form a load-bearing wall. They can be loaded from one or both sides.
- Retaining wall with insitu heel, the precast wall unit is cast with exposed projecting steel in the heel of the unit, the concrete is then poured on the projecting steel on site.
- Twin walls, ideally suited for basements and embanking of materials. The twinwall comprises of two panels connected by a cast in steel lattice, the unit is then filled with insitu concrete, to form a single unit.



Retaining Wall Units

Concast's concrete box culverts are used for conveyance of fluids such as stormwater, stream crossings and sewage as well as for short-span bridges and underground access. Precast box culverts are produced in a controlled environment allowing a high degree of quality and uniformity. Concast also provide wing walls and head beams, which can be used to guide fluids through the box sections.

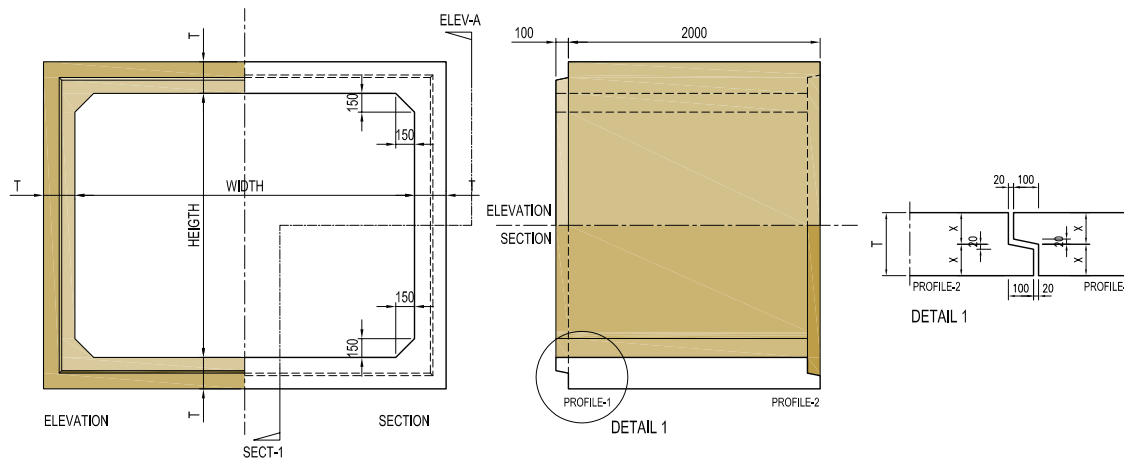




Culverts and Trenches

In addition to a standard range of box culverts, Concast can also provide non-standard sizes to suit your requirements. U shaped culverts (or trenches) are also popular, when access is required from the top of the culvert. Lids can be cast separately for these units, which allow the user to have the culvert covered over or accessible, as required. These lids are often used when pipes or other equipment stored within the culvert/trench may require maintenance.

Final design and wall thickness is dependent upon the project specific design criteria, which can be reviewed by our design department.



Culvert Standard Sizes and Thickness

Internal Dimensions																			
Heights (mm)	Widths (mm)																		
	1000	1200	1500	1800	2100	2400	2700	3000	3300	3600	3900	4200	4500	4800	5100	5400	5700	6000	
600																			
800			200 mm thk.																
1000																			
1100																			
1200						250 mm thk.													
1500																			
1800																			
2100																			
2400																			
2700																			
3000																			
3300																			
3600																			

Note: Other thicknesses are available upon consulting with Concast design Engineers.

Culverts and Trenches

The Concast Precast Group

provide complete precast concrete solutions for a wide range of sectors including:

Retail and office parks

Concast provide multi-storey precast frames for retail or office buildings. Typically the floor plan maximises the open plan requirements, which consist of columns, beams, stairs, floors, wall panels with external precast cladding.

Leisure and Sports Stadia

Concast typically provide terraced stadia seating units, wall panels, raker beams, columns, beams, flooring and stairs.

Residential – modern housing and apartments

Residential schemes are ideally suited to precast concrete cross wall construction, consisting of load bearing and non-load bearing wall panels, floors, stair cores and lift shafts, balcony and cladding panels.

Multi-storey car parks

Concast have extensive expertise in multi-storey car parks, consisting of multi-storey precast concrete columns, beams, spandrel panels, planters, flooring, stair cores and cladding panels.

Civil Engineering Solutions

Concast provide precast solutions for road, rail, harbour and sewage treatment structures. The types of precast products provided include bridge beams, column and beams, culverts, retaining walls and other bespoke items.







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